

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 9/7/2015 (Developing El Nino Condition)

Lake Okeechobee Net Inflow Outlook:

The Lake Okeechobee Net Inflow Outlook has been computed using 4 methods: Croley's method¹, the SFWMD empirical method², a sub-sampling of El Nino years³ and a sub-sampling of cold years of the Atlantic Multi-decadal Oscillation (AMO) in combination with ENSO El Nino years⁴. The results for Croley's method and the SFWMD empirical method are based on the [CPC Outlook](#).

Table of the Lake Okeechobee Net Inflow Outlooks in feet of equivalent depth. All methods are updated on a weekly basis with observed net inflow for the current month.

Season	Croley's Method ^{1*}		SFWMD Empirical Method ²		Sub-sampling of ENSO El Nino Years ³		Sub-sampling of AMO Warm + ENSO El Nino Years ⁴	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Sep-Feb)	N/A	N/A	2.06	Very Wet	2.63	Very Wet	2.12	Very Wet
Multi Seasonal (Sep-Apr)	N/A	N/A	2.18	Normal	3.23	Wet	2.52	Wet

*Croley's Method Not Produced For This Report

See [Seasonal](#) and [Multi-Seasonal](#) tables for the classification of Lake Okeechobee Outlooks.

The recommended methods and values for estimating the Lake Okeechobee Net Inflow Outlook are shaded and should be used in the LORS2008 Release Guidance Flow Charts.

[Tributary Hydrologic Conditions Graph:](#)

10044 cfs 14-day running average for Lake Okeechobee Net Inflow through 9/7/2015. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Very Wet.

-0.87 for Palmer Index on 9/6/2015.

According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Normal.

The wetter of the two conditions above is **Very Wet**.

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 9/7/2015

Lake Okeechobee Stage: **13.32 feet**

[USACE Report for Lake Okeechobee](#)

[Lake Okeechobee Stage Hydrograph](#)

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		16.46	
Operational Band	High sub-band	16.08	
	Intermediate sub-band	15.69	
	Low sub-band	13.92	
Base Flow sub-band		12.67	← 13.32
Beneficial Use sub-band		12.51	
Water Shortage Management Band			

[Part C of LORS2008: Discharge to WCA's](#)

Release Guidance Flow Chart Outcome: Up to Maximum Releases to the WCAs if Desirable or with Minimum Everglades Impacts

[Part D of LORS2008: Discharge to Tidewater](#)

Release Guidance Flow Chart Outcome: S-79 up to 450 cfs and S-80 up to 200 cfs

Technical Input Summaries from:

- [Lake Okeechobee Division](#)
- [Coastal Ecosystems](#)
- [Everglades Ecosystems Division](#)
- [Water Supply Department](#)
- [Water Resource Management Release Recommendation](#)
- [Kissimmee Watershed Environmental Conditions](#)
- [Operations Department](#)

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LORS2008 Implementation on 9/7/2015 (ENSO Neutral Condition):

Water Supply Department Technical Input

Water Supply Outlook:

District wide, Raindar rainfall 1.66 inches for the week ending 9/8/2015. Lake stage on 9/7/2015 is 13.32 ft, up 0.37 ft from last week.

The updated August 2015 SFWMM Dynamic Position Analysis [percentile graph](#) and [tracking chart](#) for Lake Okeechobee show that the lake stage is in the Base Flow Operational Sub-Band.

The LORS2008 tributary [indices](#) are classified as **Very Wet**. The PDSI indicates normal condition and the LONIN is Very Wet. The classification is based on the wetter of the two.

Water Supply Risk Evaluation

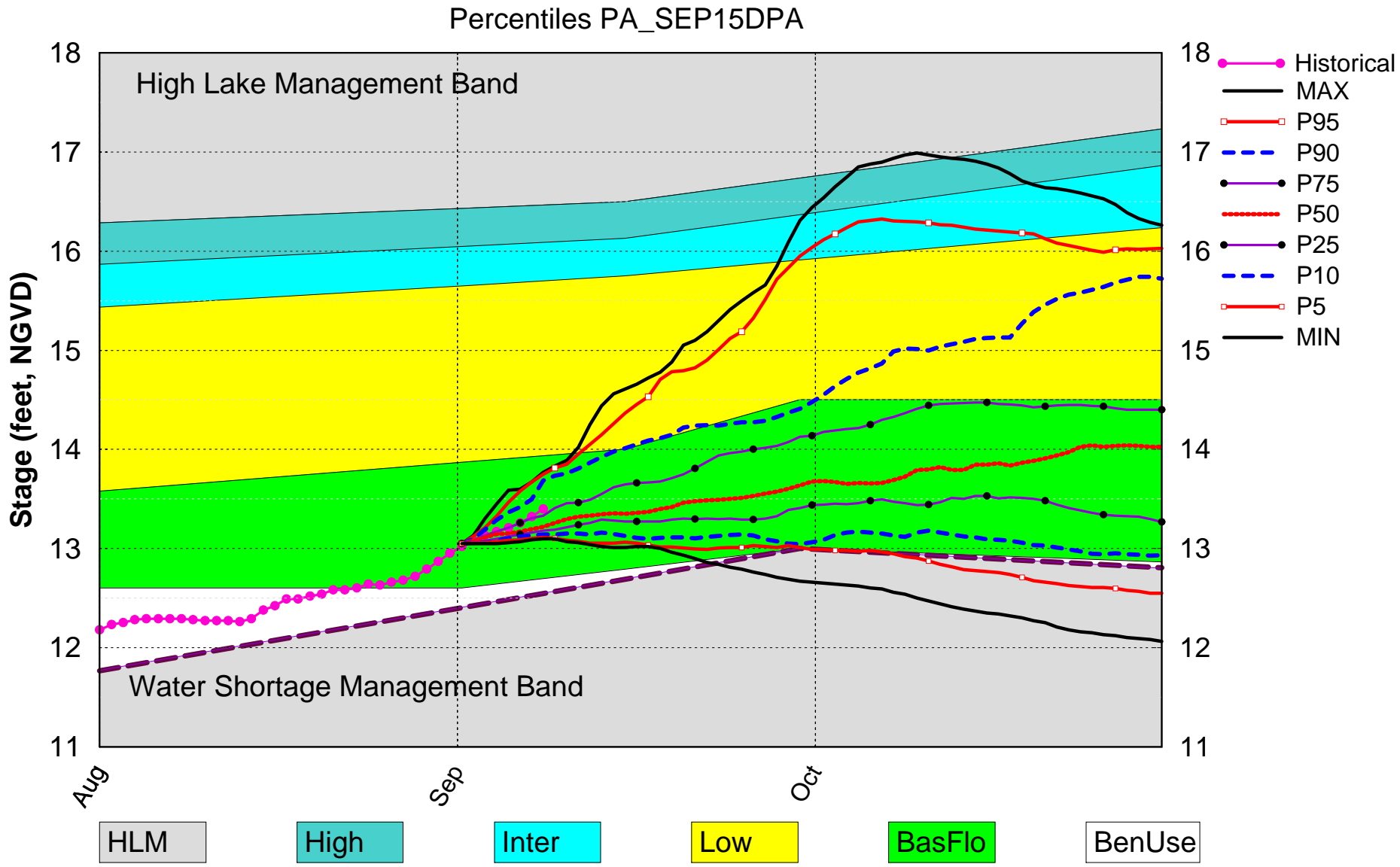
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Base Flow Sub-Band	M
	Palmer Index for LOK Tributary Conditions	-0.87 (Normal)	L
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Normal	L
	LOK Seasonal Net Inflow Forecast	2.63 ft (Normal to Extremely Wet)	L
	AMO warm/El Nino		
	LOK Multi-Seasonal Net Inflow Forecast	3.23 ft (Wet)	L
AMO warm/El Nino			
WCAs	WCA 1: Site 1-8C	Above Line 1 (16.25 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (12.52 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (9.23 ft)	L
LEC	Service Area 1	50% or more of USGS wells are within the lowest 10% to 30% of past water elevations and not more than 25% are in the lowest 10% of past water elevations	M
	Service Area 2	50% or more of USGS wells are within the lowest 10% to 30% of past water elevations and not more than 25% are in the lowest 10% of past water elevations	M
	Service Area 3	50% or more of USGS wells are within the lowest 10% to 30% of past water elevations and more than 25% are in the lowest 10% of past water elevations	H

Note: The water supply risk classification based on the Palmer index, as well as the LOK seasonal and multi-seasonal net inflow forecasts use slightly different classification intervals than those used by the 2008-LORS for classifying the tributary hydrologic condition (THC).

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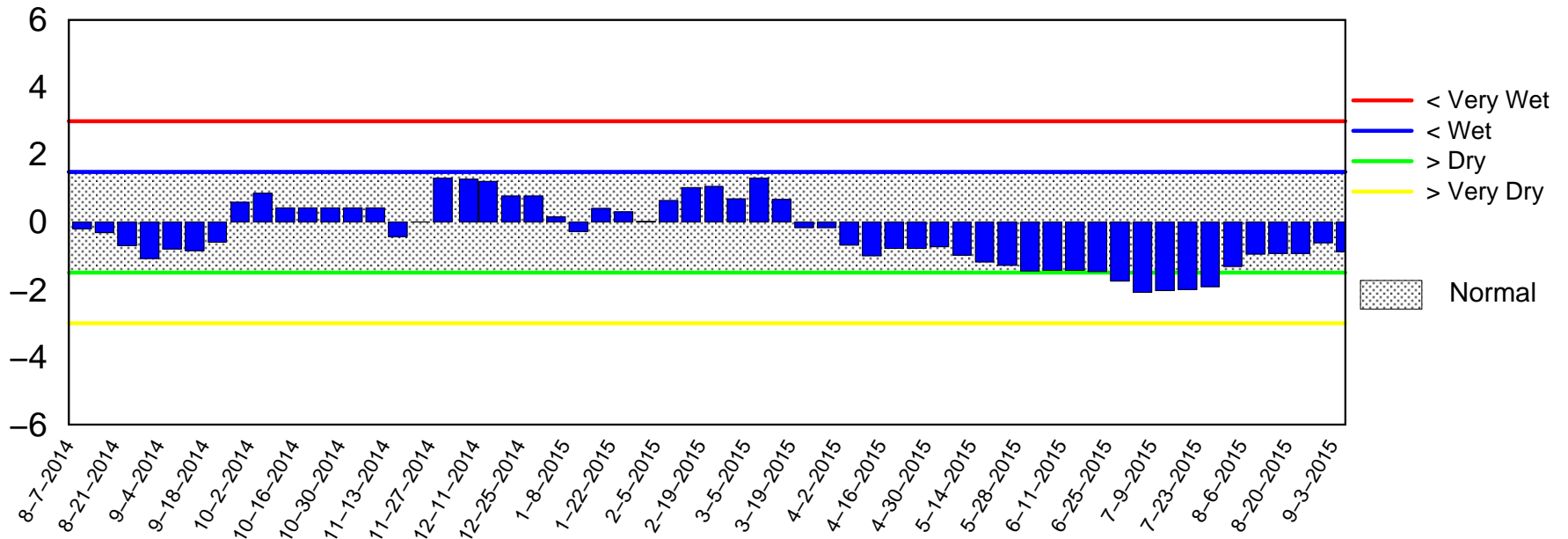
Lake Okeechobee SFWMM September 2015 Dynamic Position Analysis



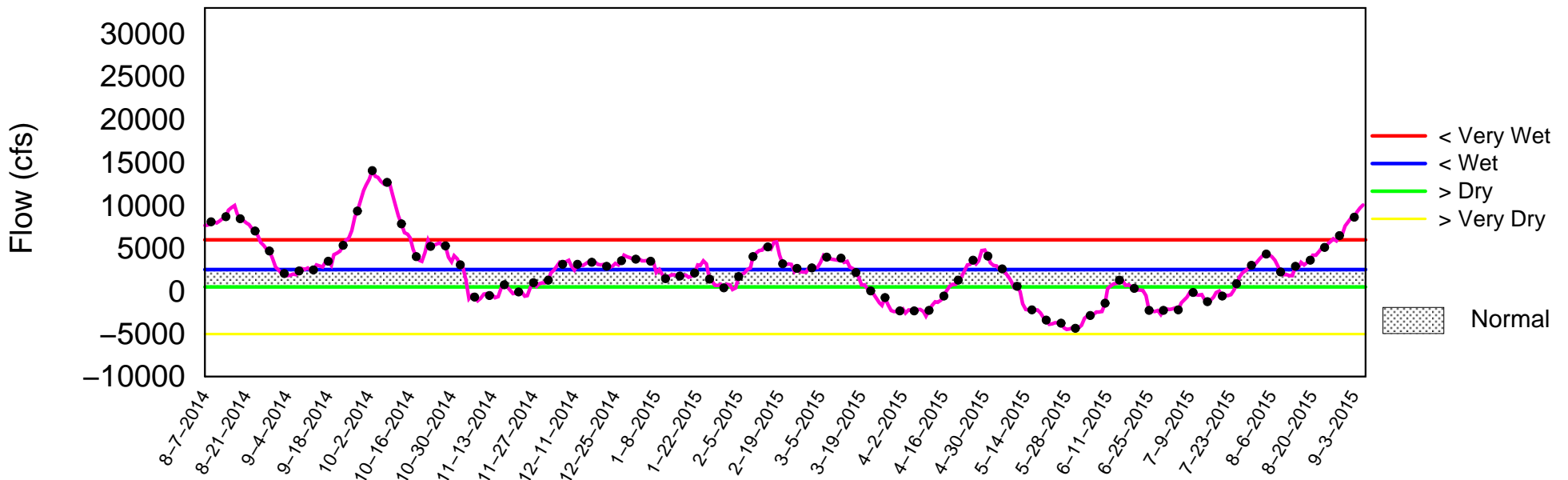
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of September 7 2015

Palmer Index



Lake Okeechobee Net Inflow (LONIN) 14-day Running Average



2008 LORS

Part C: Establish Allowable Lake Okeechobee Releases to the Water Conservation Areas

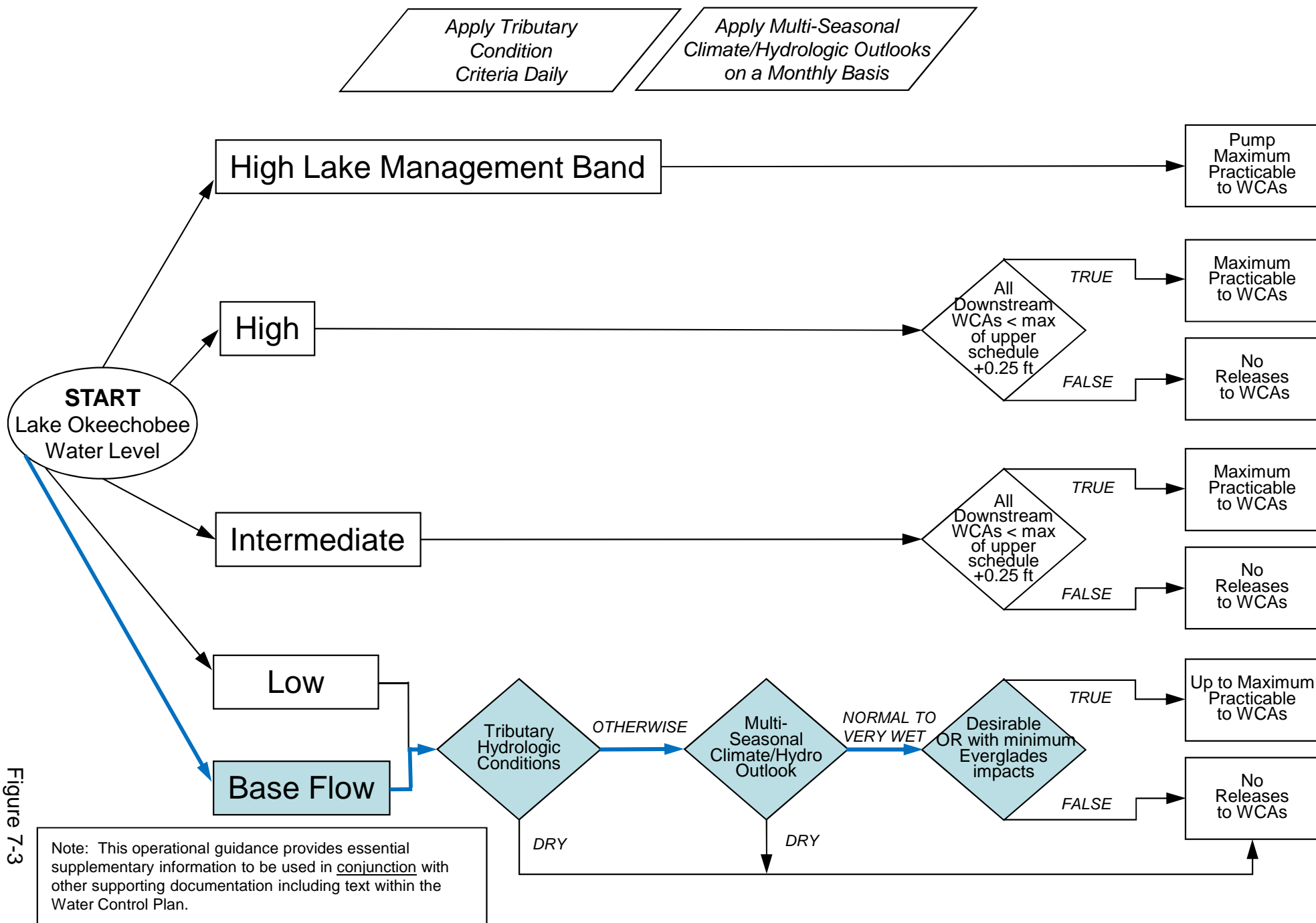


Figure 7-3

2008 LORS FORECAST

Part C: Establish Allowable Lake Okeechobee Releases to the Water Conservation Areas

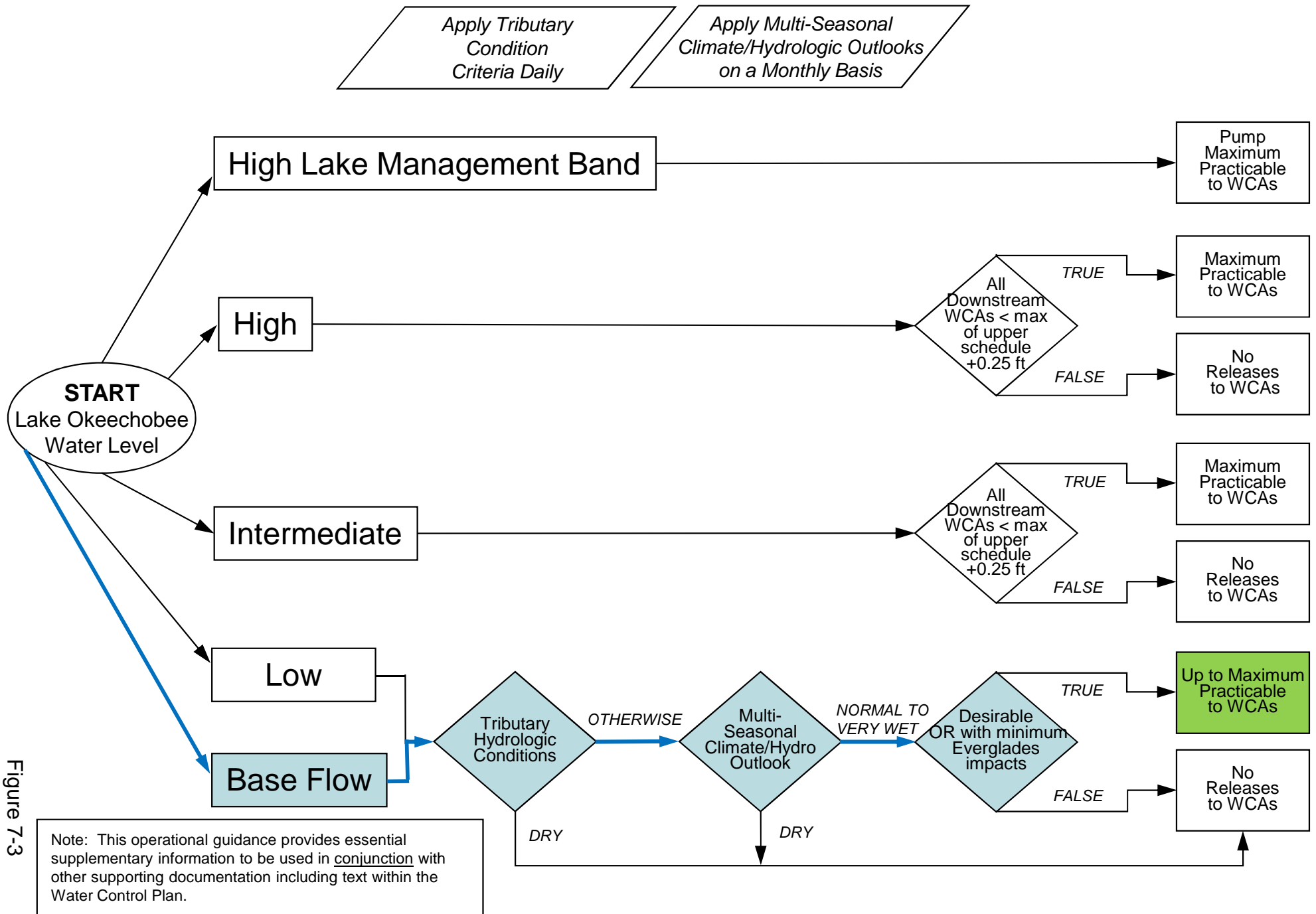


Figure 7-3

2008 LORS

Part D: Establish Allowable Lake Okeechobee Releases to Tide (Estuaries)

Note: This operational guidance provides essential supplementary information to be used in conjunction with other supporting documentation including text within the Water Control Plan.

When conducting Base Flow releases, flows can be distributed East and West up to 650 cfs as needed to minimize impacts or provide benefits through S-80 and S-79

Apply Meteorological Forecasts on a Weekly Basis; apply Seasonal and Multi-Seasonal Climate/Hydrologic Outlooks on a Monthly Basis

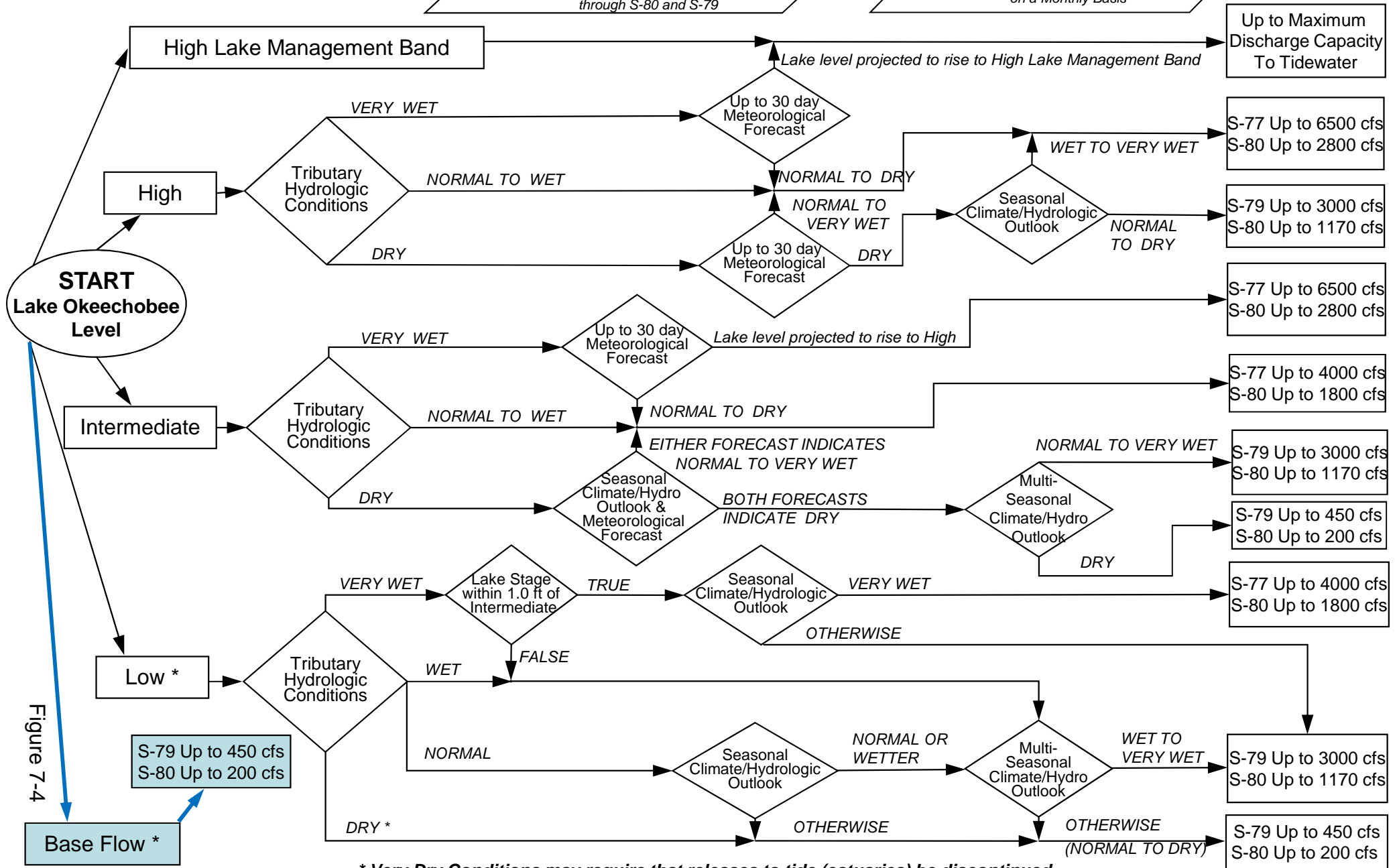


Figure 7-4

* Very Dry Conditions may require that releases to tide (estuaries) be discontinued

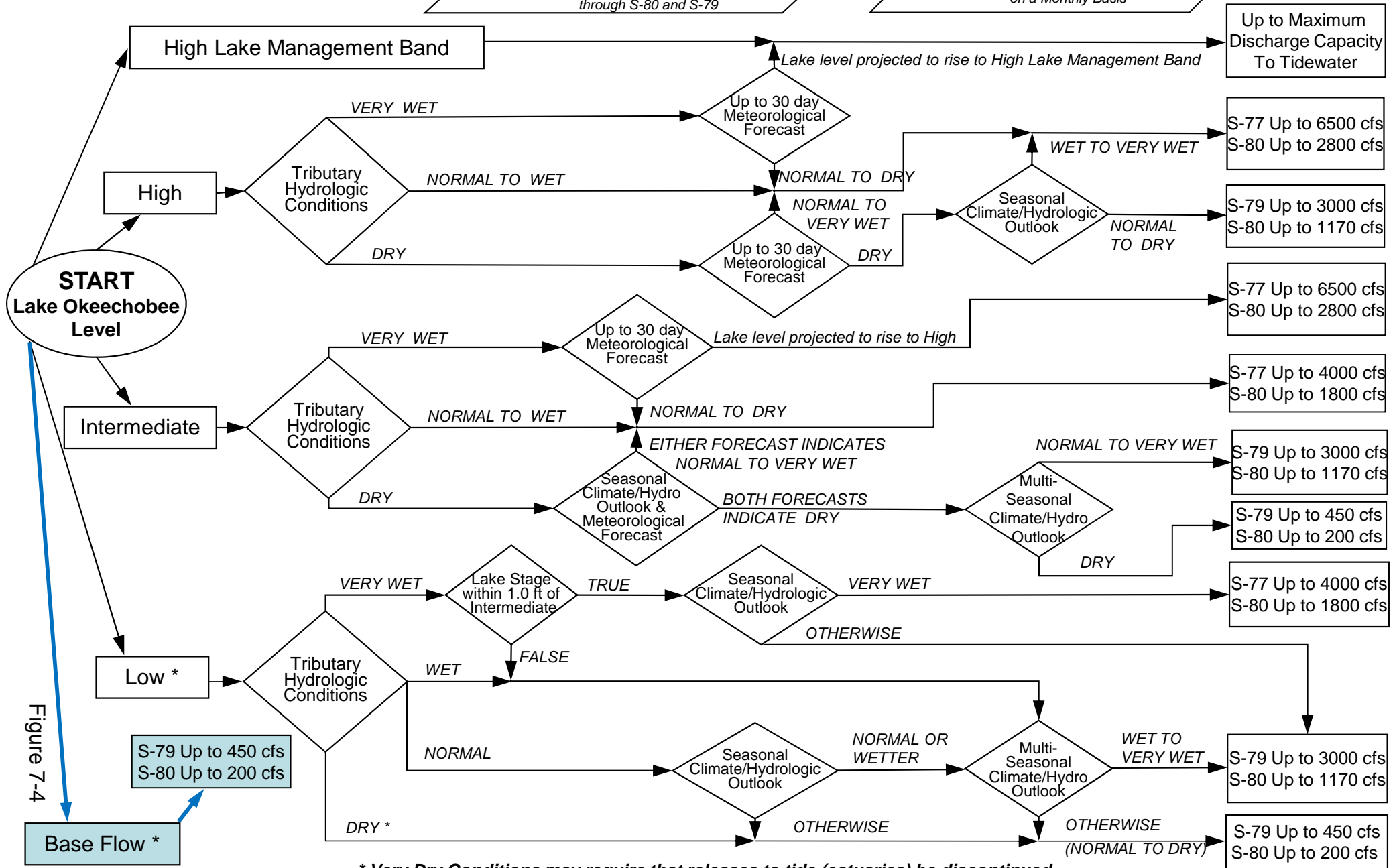
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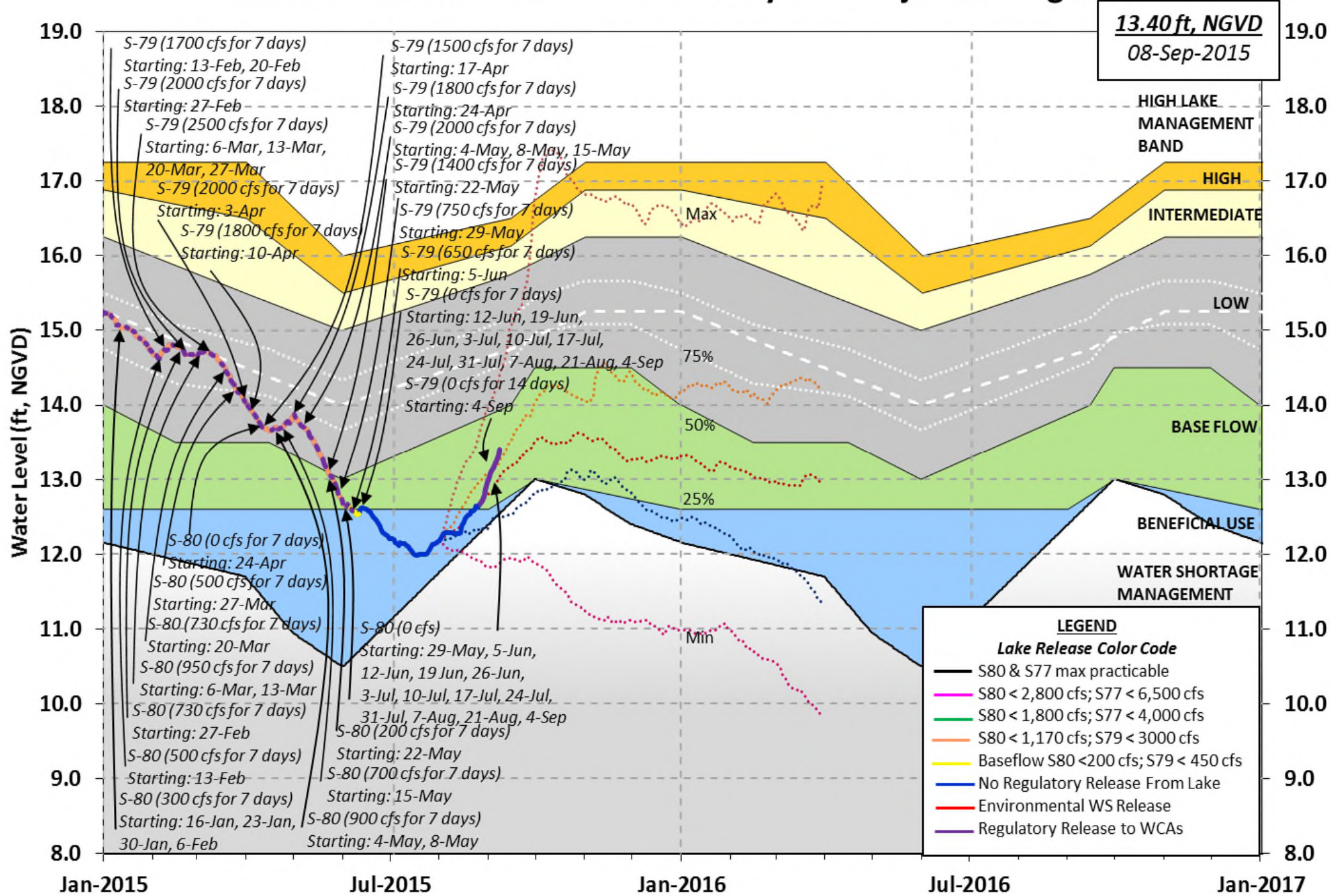
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* Very Dry Conditions may require that releases to tide (estuaries) be discontinued

Figure 7-4

Lake Okeechobee Water Level History and Projected Stages



C5:	14.70	13.49	0	0.0	0.0	0.0			
South Shore									
S4 Pumps:	10.96	13.41	0	0	0	0			(cfs)
S169:	13.43	10.97	0	0.0	0.0	0.0			
S310:	13.35		3						
S3 Pumps:	10.28	13.45	0	0	0	0			(cfs)
S354:	13.45	10.28	0	0.0	0.0				
S2 Pumps:	9.79	13.39	0	0	0	0	0		(cfs)
S351:	13.39	9.79	0	0.0	0.0	0.0			
S352:	13.55	10.10	0	0.0	0.0				
C10A:	-NR-	13.57		0.0	8.5	8.5	8.5	8.5	8.5
L8 Canal PT		13.36	53						

S351 and S352 Temporary Pumps/S354 Spillway									
S351:	9.79	13.39	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S352:	10.10	13.55	0	-NR-	-NR-	-NR-	-NR-		
S354:	10.28	13.45	0	-NR-	-NR-	-NR-	-NR-		

Caloosahatchee River (S77, S78, S79)									
S47B:	13.04	10.85		1.0	1.0				
S47D:	10.86	10.86	-13	5.0					
S77:	Spillway and Sector Flow:								
	13.31	10.91	0	0.0	0.0	0.0	0.0		
	Flow Due to Lockages+:		1						
S77 Below USGS Flow Gage			23						
S78:	Spillway and Sector Flow:								
	10.70	2.73	319	0.0	0.0	0.5	0.0		
	Flow Due to Lockages+:		7						
S79:	Spillway and Sector Flow:								
	2.98	1.64	2371	1.0	1.0	2.0	2.0	1.0	1.0
1.0	Flow Due to Lockages+:		4						
	Percent of flow from S77		0%						
	Chloride (ppm)		54						
St. Lucie Canal (S308, S80)									
S308:	Spillway and Sector Flow:								
	13.32	14.51	0	0.0	0.0	0.0	0.0		
	Flow Due to Lockages+:		-1						
S308 Below USGS Flow Gage			-62						
S153:	18.83	14.35	66	0.5	0.5				
S80:	Spillway and Sector Flow:								
	14.65	1.10	391	0.0	0.4	0.4	0.0	0.4	0.0

Flow Due to Lockages+: 10
 Percent of flow from S308 0%

Steele Point Top Salinity (mg/ml) ****
 Steele Point Bottom Salinity (mg/ml) ****

Speedy Point Top Salinity (mg/ml) ****
 Speedy Point Bottom Salinity (mg/ml) ****

+ Flow Due to lockages is computed utilizing average daily headwater and tailwater along with total number of lockages for the day to calculate a volume which is then converted to an average discharge in cfs.

					----- Wind ---	
Daily Precipitation Totals	1-Day	3-Day	7-Day	Direction		
Speed	(inches)	(inches)	(inches)	(Degø)		
(mph)						
S133 Pump Station:	-NR-	0.72	0.74			
S193:	-NR-	0.00	0.00	-NR-	-NR-	
Okeechobee Field Station:	-NR-	0.00	0.00			
S135 Pump Station:	-NR-	0.11	0.17			
S127 Pump Station:	-NR-	0.84	0.87			
S129 Pump Station:	-NR-	0.48	0.73			
S131 Pump Station:	-NR-	0.34	0.64			
S77:	0.06	1.26	1.42	191	1	
S78:	0.15	0.41	0.43	122	3	
S79:	0.15	0.97	1.46	148	1	
S4 Pump Station:	-NR-	0.00	0.00			
Clewiston Field Station:	-NR-	0.00	0.00			
S3 Pump Station:	-NR-	0.00	0.49			
S2 Pump Station:	-NR-	0.01	0.20			
S308:	0.13	0.84	0.91	74	4	
S80:	0.13	0.19	0.56	93	0	
Okeechobee Average	0.09	0.35	0.47			
(Sites S78, S79 and S80 not included)						

Oke Nexrad Basin Avg	-NR-	0.73	1.13			

Okeechobee Lake Elevations	07 SEP 2015	13.40	Difference from
07SEP15			07SEP15
07SEP15 -1 Day =	06 SEP 2015	13.32	-0.08
07SEP15 -2 Days =	05 SEP 2015	13.26	-0.14
07SEP15 -3 Days =	04 SEP 2015	13.21	-0.19
07SEP15 -4 Days =	03 SEP 2015	13.17	-0.23
07SEP15 -5 Days =	02 SEP 2015	13.13	-0.27
07SEP15 -6 Days =	01 SEP 2015	13.08	-0.32
07SEP15 -7 Days =	31 AUG 2015	13.02	-0.38
07SEP15 -30 Days =	08 AUG 2015	12.29	-1.11
07SEP15 -1 Year =	07 SEP 2014	14.49	1.09
07SEP15 -2 Year =	07 SEP 2013	15.52	2.12

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = -NR-

Lake Okeechobee Net Inflow (LONIN)						
Average Flow over the previous 14 days					Avg-Daily Flow	
07SEP15	Today =	07 SEP 2015	11240	TUE	16993	
07SEP15	-1 Day =	06 SEP 2015	9889	MON	12809	
07SEP15	-2 Days =	05 SEP 2015	9529	SUN	10673	
07SEP15	-3 Days =	04 SEP 2015	9053	SAT	8575	
07SEP15	-4 Days =	03 SEP 2015	9090	FRI	8602	
07SEP15	-5 Days =	02 SEP 2015	9046	THU	10616	
07SEP15	-6 Days =	01 SEP 2015	8534	WED	12715	
07SEP15	-7 Days =	31 AUG 2015	8011	TUE	14066	
07SEP15	-8 Days =	30 AUG 2015	6929	MON	15579	
07SEP15	-9 Days =	29 AUG 2015	6789	SUN	15377	
07SEP15	-10 Days =	28 AUG 2015	6204	SAT	13764	
07SEP15	-11 Days =	27 AUG 2015	6478	FRI	7819	
07SEP15	-12 Days =	26 AUG 2015	6367	THU	3933	
07SEP15	-13 Days =	25 AUG 2015	6078	WED	5840	

S65E						
Average Flow over previous 14 days					Avg-Daily Flow	
07SEP15	Today=	07 SEP 2015	5037	TUE	6713	
07SEP15	-1 Day =	06 SEP 2015	4747	MON	6243	
07SEP15	-2 Days =	05 SEP 2015	4485	SUN	6112	
07SEP15	-3 Days =	04 SEP 2015	4240	SAT	6195	
07SEP15	-4 Days =	03 SEP 2015	3976	FRI	5908	
07SEP15	-5 Days =	02 SEP 2015	3733	THU	5452	
07SEP15	-6 Days =	01 SEP 2015	3488	WED	5039	
07SEP15	-7 Days =	31 AUG 2015	3281	TUE	4646	
07SEP15	-8 Days =	30 AUG 2015	3091	MON	4514	
07SEP15	-9 Days =	29 AUG 2015	2950	SUN	4745	
07SEP15	-10 Days =	28 AUG 2015	2757	SAT	4558	
07SEP15	-11 Days =	27 AUG 2015	2571	FRI	3770	
07SEP15	-12 Days =	26 AUG 2015	2414	THU	3648	
07SEP15	-13 Days =	25 AUG 2015	2268	WED	2976	

Lake Okeechobee Outlets Last 14 Days

DATE	S-77 Discharge (0700-2100) (AC-FT)	S-77 Discharge (ALL DAY) (AC-FT)	Below S-77 Discharge (ALL-DAY) (AC-FT)	S-78 Discharge (0700-2100) (AC-FT)	S-78 Discharge (ALL DAY) (AC-FT)	S-79 Discharge (ALL DAY) (AC-FT)
07 SEP 2015	0	3	45	315	646	4710
06 SEP 2015	0	4	71	690	1188	4663
05 SEP 2015	0	7	24	753	1292	5026
04 SEP 2015	0	6	-68	753	1380	4657
03 SEP 2015	0	2	-72	954	1699	6003
02 SEP 2015	0	1	222	1241	2100	7326
01 SEP 2015	0	2	96	1480	2537	8554
31 AUG 2015	0	1	5	1624	2547	6822

30 AUG 2015	0	2	-170	2096	2974	8042
29 AUG 2015	0	7	-335	1419	2589	7181
28 AUG 2015	0	2	-210	1194	1971	6637
27 AUG 2015	0	1	-74	404	900	5179
26 AUG 2015	0	2	-180	332	519	4734
25 AUG 2015	0	2	-89	0	2	1716

	S-310	S-351	S-352	S-354	L8 Canal Pt
	Discharge	Discharge	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL DAY)	(ALL DAY)	(ALL DAY)	(ALL DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)
07 SEP 2015	6	0	0	0	105
06 SEP 2015	17	0	0	0	206
05 SEP 2015	-81	0	0	0	170
04 SEP 2015	-109	208	0	0	-45
03 SEP 2015	9	262	0	0	-74
02 SEP 2015	-64	0	0	0	56
01 SEP 2015	-131	0	0	0	20
31 AUG 2015	-215	0	0	0	-93
30 AUG 2015	-210	0	0	0	-181
29 AUG 2015	-204	0	0	0	-88
28 AUG 2015	-58	0	0	0	-3
27 AUG 2015	-62	0	0	0	108
26 AUG 2015	-12	0	0	0	201
25 AUG 2015	28	0	0	0	184

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
07 SEP 2015	-3	-122	795
06 SEP 2015	-8	157	154
05 SEP 2015	-4	205	184
04 SEP 2015	-5	-140	260
03 SEP 2015	-2	-171	15
02 SEP 2015	-2	-114	26
01 SEP 2015	-2	-30	574
31 AUG 2015	-1	-79	697
30 AUG 2015	-1	-98	163
29 AUG 2015	-1	133	738
28 AUG 2015	-4	75	1882
27 AUG 2015	-5	12	1397
26 AUG 2015	0	9	23
25 AUG 2015	-3	-34	30

*** NOTE: 1) Discharge from (0700-2100) is computed using Spillway and Sector

Gate Discharges from 0700 hrs to 2100 hrs.

and 2) Discharge (ALL DAY) is computed using Spillway, Sector Gate

and Lockages Discharges from 0015 hrs to 2400 hrs.

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(I) - Flows preceded by "I" signify an instantaneous flow computed from the single value reported for the day

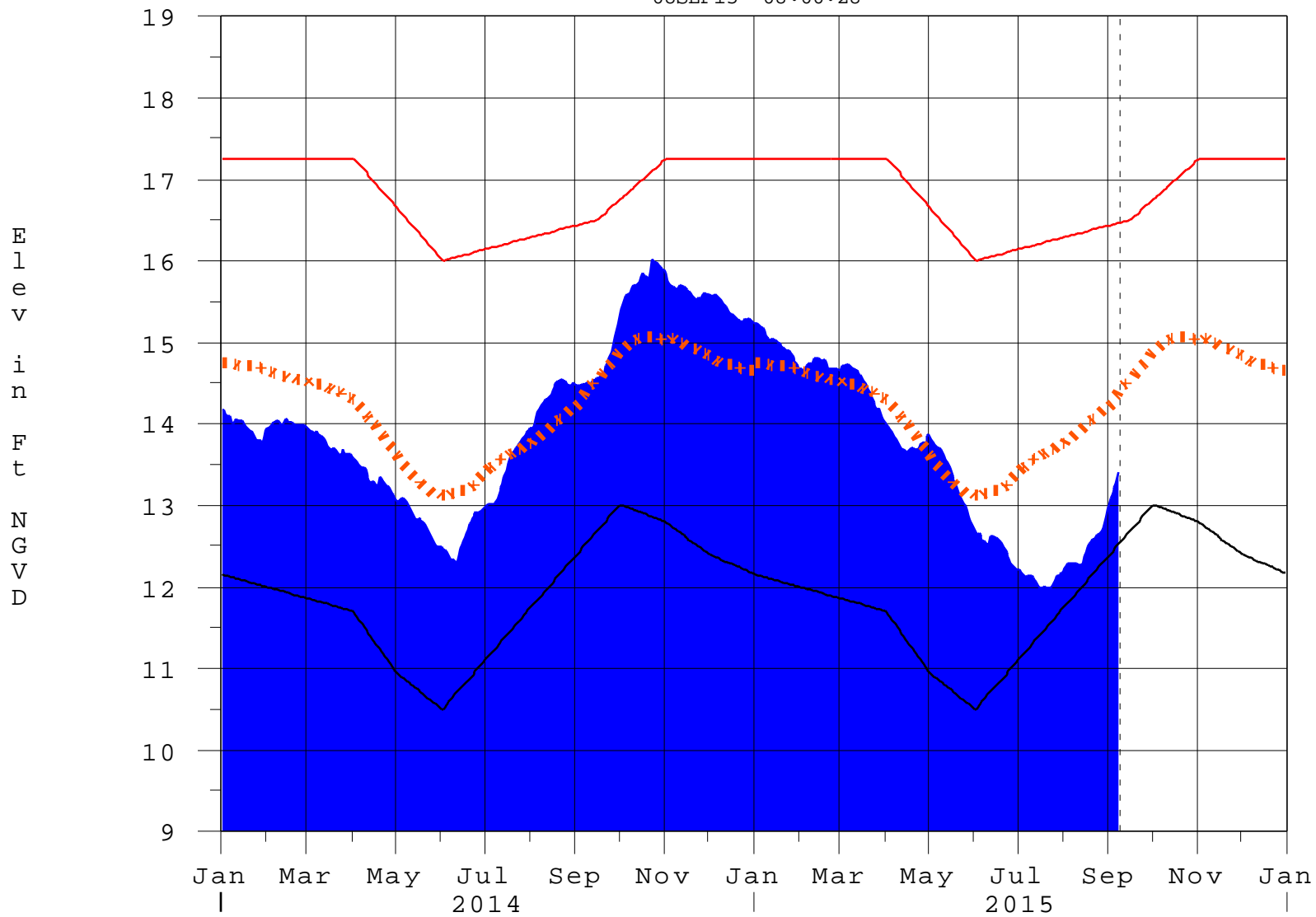
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* On 11 May 1999, Lake Okeechobee Elevation was switched from Instantaneous 2400 value to an average-daily lake average.
On 14 Mar 2001, due to the isolation of various gages within the standard
10 stations, the average of the interior 4 station gages was used as the Lake Okeechobee Elevation.
On 05 November 2010, Lake Okeechobee Elevation was switched to a 9 gage mix of interior and edge gages to obtain a more reliable representation of the lake level.
On 09 May 2011, Lake Okeechobee Elevation was switched to a 8 gage mix of interior and edge gages to obtain a more reliable representation of the lake level due to isolation of S135 from low lake levels.
Today Lake Okechobee elevation is determined from the 4 Int & 4 Edge stations
++ For more information see the Jacksonville District Navigation website at <http://www.saj.usace.army.mil/>
\$ For information regarding Lake Okeechobee Service Area water restrictions
please refer to www.sfwmd.gov

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Report Generated 08SEP2015 @ 08:06 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

08SEP15 08:00:28



- High Lake Management
- Okeechobee Avg Elev
- Average Elev [1965-2007]
- Water Shortage Management

Classification Tables

Supplemental Tables used in conjunction with the LORS2008 Release

Guidance Flow Charts

- [Class Limits for Tributary Hydrologic Conditions](#)

Table K-2 in the Lake Okeechobee Water Control Plan

- [6-15 Day Precipitation Outlook Categories](#)

Table ?? in the Lake Okeechobee Water Control Plan

- [Classification of Lake Okeechobee Net Inflow for Seasonal Outlook](#)

Table K-3 in the Lake Okeechobee Water Control Plan

- [Classification of Lake Okeechobee Net Inflow for Multi-Seasonal Outlook](#)

Table K-4 in the Lake Okeechobee Water Control Plan

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Tributary Hydrologic Classification*	Palmer Index Class Limits	2-wk Mean L.O. Net Inflow Class Limits
Very Wet	3.0 or greater	Greater \geq 6000 cfs
Wet	1.5 to 2.99	2500 - 5999 cfs
Near Normal	-1.49 to 1.49	500 - 2499 cfs
Dry	-2.99 to -1.5	-5000 – 500 cfs
Very Dry	-3.0 or less	Less than -5000 cfs

* use the wettest of the two indicators

Classification of Lake Okeechobee Net Inflow Seasonal Outlook*

Lake Net Inflow Prediction [million acre-feet]	Equivalent Depth** [feet]	Lake Okeechobee Net Inflow Seasonal Outlook
> 0.93	> 2.0	Very Wet
0.71 to 0.93	1.51 to 2.0	Wet
0.35 to 0.70	0.75 to 1.5	Normal
< 0.35	< 0.75	Dry

****Volume-depth conversion based on average lake surface area of 467,000 acres**

Classification of Lake Okeechobee Net Inflow Multi-Seasonal Outlook*

Lake Net Inflow Prediction [million acre-feet]	Equivalent Depth** [feet]	Lake Okeechobee Net Inflow Multi-Seasonal Outlook
> 2.0	> 4.3	Very Wet
1.18 to 2.0	2.51 to 4.3	Wet
0.5 to 1.17	1.1 to 2.5	Normal
< 0.5	< 1.1	Dry

****Volume-depth conversion based on average lake surface area of 467,000 acres**

6-15 Day Precipitation Outlook Categories*

6-15 Day Precipitation Outlook Categories	WSE Decision Tree Categories
Above Normal	Wet to Very Wet
Normal	Normal
Below Normal	Dry

* Corresponds to Table 7-6 in the Lake Okeechobee Water Control Plan

Under Construction